UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
Jalan Colombo Nomor 1 Yogyakarta 55281
Telepon: (0274) 565411 Pesawat 217, (0274) 565411 (TU); Fax. (0274) 548203
Laman: fmipa.uny.ac.id, E-mail: humas_fmipa@uny.ac.id

Bachelor of Education in Mathematics **MODULE HANDBOOK**

Module name:	Advance Calculus
Module level, if applicable:	Undergraduate
Code:	MAT6313
Sub-heading, if applicable:	-
Classes,if applicable:	-
Semester:	3rd
Module coordinator:	Dr. Sugiman
Lecturer(s):	1. Dr. Sugiman 2. Eminugroho Ratnasari, M.Sc.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format / class hours per week during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.
Credit points:	3
Prerequisites course(s):	Integral Calculus (MAT6307)
Course outcomes:	After taking this course the students have ability to: CO1. Demonstrate collaborative attitude and independence in carrying out individual tasks and group assignments CO2. Communicate ideas in solving mathematical problems in writing or verbally

<table>
<tr><td></td><td>CO3. Describe concepts and methods about continuity of function, partial derivative and multiple integral
CO4. Applying concepts and methods about partial derivative and multiple integral
CO5. Explore and proof theorems about convergence sequence
CO6. Modelling real problem using multiple integral and interpreting</td></tr>
<tr><td>Content:</td><td>This course discusses the sequences, infinite series, convergence tests of the sequences and series, divergence tests of the sequences and series, Taylor series, functions of two variables, limit and continuity of functions of two variables, derivatives of functions of two variables, directional derivatives, maximum and minimum, the chain rule, Lagrange method, multiple integrals in Cartesian as well as in polar coordinates, the applications of multiple integrals in finding the volume of a solid or the area of a surface</td></tr>
<tr><td>Study/exam achievements:</td><td>CO1: Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.
The final mark will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Assesment Object</th><th>Assessment Techniques</th><th>Weight</th></tr>
<tr><td>1</td><td>CO1, CO2, CO 3,CO4, CO5,CO6, and CO 7</td><td>a. Individual assignments
b. group assignments
c. Quiz
d. MID
e. Final Exam</td><td>Written test</td><td>15%

10%
20%
25%
30%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
</td></tr>
</table>

Forms of media:	Board, LCD Projector, Laptop/Computer
Literature:	1. Sugiman. 2013. Kalkulus Lanjut. Hand Book. 2. Purcell, Edwin J. dan Varberg, D. 1987. Kalkulus dan Geometri Analitis, Jilid 2. Edisi kelima. Penerjemah: I Nyoman Sulila, Bana Kartasasmita, dan Rawuh. Jakarta: Penerbit Erlangga. 3. Larson, Hestetler, and Edwards. 2008. *Essensial Calculus: EralyTrancendental Functions*. Boston: Houghtin Mifflin Company.

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1		✓										
CO2			✓									
CO3					✓							
CO4						✓						
CO5						✓						
CO6							✓					